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Address to:
Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

Attorney's Docket No. SONY-P8770
[S98P0770US00]
First Named Inventor TOMOKO TERAOKA

UTILITY PATENT APPLICATION TRANSMITTAL
(under 37 CFR 1.53(b))

SIR:

Transmitted herewith for filing is the patent application entitled:
RECEIVING APPARATUS AND METHOD, TRANSMITTING APPARATUS AND METHOD, AND
TRANSMISSION MEDIUM

CERTIFICATION UNDER 37 CFR § 1.10

I hereby certify that this New Application and the documents referred to as enclosed herein are being deposited with the United States Postal Service on this date July 13, 1998, in an envelope bearing "Express Mail Post Office To Addressee" Mailing Label Number EM502815302US addressed to: Box Patent Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

HOWARD WONG

(Name of person mailing paper)

(Signature)

Enclosed are:

1. ☒ Transmittal Form (two copies required)
2. The papers required for filing date under CFR § 1.53(b):
 - i. 29 Pages of specification (including claims and abstract);
 - ii. 12 Sheets of drawings.
 ___ formal ☒ informal
3. Declaration or oath
 - a. ☒ (unsigned)
4. ___ Microfiche Computer Program (Appendix, see 37 CFR 1.96)
5. ___ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
 - i. ___ Computer Readable Copy
 - ii. ___ Paper Copy (identical to computer copy)
 - iii. ___ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

6. ___ An assignment of the invention to Sony Corporation is attached (including Form PTO-1595).
 - i. ___ 37 CFR 3.73(b) Statement (when there is an assignee)
7. ☒ Power of Attorney (unsigned)
8. ___ An Information Disclosure Statement (IDS) is enclosed, including a PTO-1449 and copies of ___ references.
9. ___ Preliminary Amendment.
10. ☒ Return Receipt Postcard (MPEP 503 -- should be specifically itemized)
11. ___ Other

12. FOREIGN PRIORITY

- [X] Priority of application no. P09-193589 filed on July 18, 1997 in Japan is claimed under 35 USC 119.

X is filed herewith; or
 has been filed in prior application no. filed on , or
 will be provided.

- a. Amendment changing number of claims or deleting multiple dependencies is enclosed.

CLAIMS AS FILED

	Number Filed	Number Extra	Rate	Basic Fee (\$790)
Total Claims	14 - 20	* 0	x \$22.00	0
Independent Claims	8 - 3	* 5	x \$82.00	\$410
— Multiple dependent claim(s), if any			\$270.00	0

*If less than zero, enter "0".

Filing Fee Calculation \$1200.00

50% Filing Fee Reduction (if applicable) \$0

14. Small Entity Status

- a. ☐ A small entity statement is enclosed.
- b. ☐ A small entity statement was filed in the prior nonprovisional application and such status is still proper and desired.
- c. ☐ is no longer claimed.

15. Other Fees

- | | | |
|---|--|-----|
| — | Recording Assignment [\$40.00] | \$0 |
| — | Other fees | |
| — | Specify _____ | \$0 |

Total Fees Enclosed \$1200.00

16. Payment of Fees

- X Check(s) in the amount of \$ 1200.00 enclosed.
 Charge Account No. 12-1420 in the amount of \$ ____.
A duplicate of this transmittal is attached.

17. All correspondence regarding this application should be forwarded to the undersigned attorney:

Charles P. Sammut
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Facsimile: 415/433-8716

18. Authorization to Charge Additional Fees

- X The Commissioner is hereby authorized to charge any additional fees (or credit any overpayment) associated with this communication and which may be required under 37 CFR § 1.16 or § 1.17 to Account No. 12-1420. **A duplicate of this transmittal is attached.**

LIMBACH & LIMBACH L.L.P.

July 13, 1998
(Date)

Attorney Docket No. SONY-P8770
[S98P0770US00]

By:

Charles P. Sammut
Registration No. 28,901
Attorney(s) or Agent(s) of Record

- 1 -

RECEIVING APPARATUS AND METHOD, TRANSMITTING APPARATUS AND
METHOD, AND TRANSMISSION MEDIUM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to receiving apparatuses and methods, transmitting apparatuses and methods, and transmission media, and in particular, to a receiving apparatus and method, a transmitting apparatus and method, and a transmission medium which are used for receiving and transmitting an image signal with electronic program guide information (hereinafter referred to as "EPG").

2. Description of the Related Art

Recently, a system has become known in which a television broadcast signal with, e.g., EPG is transmitted and the signal is received and displayed by domestic receiving apparatuses.

In this system, when program information forming the EPG is displayed, the program information can be displayed in the order of broadcasting stations designated by a user. The "StarSight"(service mark) and the "GuidePlus+"(service mark) are known examples of this system in North America.

In the case where a particular broadcasting station transmits EPG including program information from all

broadcasting stations, a receiving end treats program information from the particular broadcasting station as equivalent to program information from the other broadcasting stations. Thus, the particular broadcasting station cannot benefit by providing the information on all the programs.

In addition, when the user, who is watching a program from a predetermined broadcasting station, recognizes a program to be broadcast after the present program, program information is displayed in the order of broadcasting stations initially designated by the user, which requires the user to spend time finding a program from the desired broadcasting station.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a receiving apparatus and method, a transmitting apparatus and method, and a transmission medium which are used to display program information so as to reflect an intention of a sponsor for the program information and be easily usable by a user.

To this end, according to a first aspect of the present invention, the foregoing object has been achieved through provision of a receiving apparatus for receiving an image signal transmitted from a transmitting end, the receiving

apparatus including: receiving means for receiving the image signal; first output means for outputting the image signal received by the receiving means to a display; extracting means for extracting EPG added to the image signal received by the receiving means; alteration means for altering the display format of the EPG when the EPG is displayed on the display, in accordance with predetermined information; and second output means for outputting the EPG altered by the alteration means to the display.

According to a second aspect of the present invention, the foregoing object has been achieved through provision of a receiving method for receiving an image signal transmitted from a transmitting end, the receiving method including: a receiving step for receiving the image signal; a first output step for outputting the image signal received in the receiving step to a display; an extracting step for extracting EPG added to the image signal received in the receiving step; an alteration step for altering the display format of the EPG when the EPG is displayed on the display, in accordance with predetermined information; and a second output step for outputting the EPG altered in the alteration step to the display.

According to a third aspect of the present invention, the foregoing object has been achieved through provision of a transmission medium for transmitting a computer program

used in a receiving apparatus for receiving an image signal transmitted from a transmitting end, in which the computer program includes: a receiving step for receiving the image signal; a first output step for outputting the image signal received by the receiving step to a display; an extracting step for extracting EPG added to the image signal received in the receiving step; an alteration step for altering the display format of the EPG when the EPG is displayed on the display, in accordance with predetermined information; and a second output step for outputting the EPG altered in the alteration step to the display.

According to a fourth aspect of the present invention, the foregoing object has been achieved through provision of a transmitting apparatus for transmitting an image signal to a receiving end, the transmitting apparatus including: first generating means for generating the image signal; second generating means for generating EPG; third generating means for generating information representing a broadcasting station providing the EPG; adding means for adding the EPG generated by the second generating means and the information representing the broadcasting station, which is generated by the third generating means to the image signal generated by the first generating means; and transmitting means for transmitting to the receiving end the signal obtained by adding the EPG and the information representing the

broadcasting station to the image signal.

According to a fifth aspect of the present invention, the foregoing object has been achieved through provision of a transmitting method for transmitting an image signal to a receiving end, the transmitting method including: a first generating step for generating the image signal; a second generating step for generating EPG; a third generating step for generating information representing a broadcasting station providing the EPG; an adding step for adding the EPG generated in the second generating step and the information representing the broadcasting station, which is generated in the third generating step, to the image signal generated in the first generating step; and a transmitting step for transmitting to the receiving end the signal obtained in the adding step by adding the EPG and the information representing the broadcasting station to the image signal.

According to a sixth aspect of the present invention, the foregoing object has been achieved through provision of a transmission medium for transmitting a computer program used in a transmitting apparatus for transmitting an image signal to a receiving end, wherein the computer program includes: a first generating step for generating the image signal; a second generating step for generating EPG; a third generating step for generating information representing a broadcasting station providing the EPG; an adding step for

adding the EPG generated in the second generating step and the information representing the broadcasting station, which is generated in the third generating step, to the image signal generated in the first generating step; and a transmitting step for transmitting to the receiving end the signal obtained in the adding step by adding the EPG and the information representing the broadcasting station to the image signal.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram showing a first embodiment of a transmitting apparatus according to the present invention.

Fig. 2 is a flowchart illustrating a process executed in the transmitting apparatus shown in Fig. 1.

Fig. 3 is EPG with provider information.

Fig. 4 is a block diagram showing a receiving apparatus according to one embodiment of the present invention.

Fig. 5 is a flowchart illustrating a process executed in the receiving apparatus shown in Fig. 4.

Fig. 6 is an example of an image displayed on a cathode ray tube, which is obtained by executing the process shown in Fig. 5.

Fig. 7 is a normally displayed EPG image.

Fig. 8 is an image displayed on a cathode ray tube, which is obtained by executing the process shown in Fig. 5.

Fig. 9 is a block diagram showing a second embodiment of a receiving apparatus according to the present invention.

Fig. 10 is a flowchart illustrating a process executed in the receiving apparatus shown in Fig. 9.

Fig. 11 is a table showing the correspondence between receiving frequencies and channel Ids which are stored in the ROM shown in Fig. 9.

Fig. 12 is an image displayed on a cathode ray tube, which is obtained by executing the process shown in Fig. 10.

Fig. 13 is a block diagram showing a third embodiment of a receiving apparatus according to the present invention.

Fig. 14 is a flowchart illustrating a process executed in the receiving apparatus shown in Fig. 13.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 shows a block diagram of an embodiment of a transmitting apparatus according to the present invention.

In Fig. 1, an optical image and sound of a subject is input to a television camera 1, and the television camera 1 generates and outputs the corresponding image signal and sound signal. A signal to which a sound signal has been added will be simply referred to as an "image signal" below.

An editor 2 records the image signal output from the television camera 1, and properly combines a plurality of recorded image signals to generate an image signal

constituting one program.

An EPG generator 4 generates and outputs EPG (whose details will be described below) composed of program information from a plurality of broadcasting stations.

A provider information generator 5 generates information on broadcasting stations as EPG providers, such as "ASAHI".

A combining unit 3 adds the EPG output from the EPG generator 4 and the provider information output from the provider information generator 5 to the image signal output from the editor 2, and outputs it.

The combining unit 3 superposes, for example, the EPG and the provider information on each other in a vertical retrace blanking period of the image signal, and outputs it.

A transmitter 6 modulates a carrier in accordance with the image signal output from the combining unit 3, and amplifies the power of the carrier.

An antenna 7 transmits the carrier output from the transmitter 6 to domestic receivers.

Next, the operation of the above-described embodiment will be described with reference to the flowchart shown in Fig. 2.

Fig. 2 shows a flowchart illustrating one process executed by the transmitting apparatus shown in Fig. 1.

In step S1 of this process, an image signal output from

the television camera 1 is supplied to the editor 2, in which it is once recorded and the image is subsequently edited so as to form a program having a predetermined length. The edited image signal is output to the combining unit 3.

In step S2, the EPG generator 4 generates and supplies EPG to the combining unit 3.

In step S3, the provider information generator 5 generates and supplies provider information to the combining unit 3.

In step S4, the EPG supplied from the EPG generator 4 and the provider information supplied from the provider information generator 5 are added to the image signal supplied from the editor 2. In other words, the combining unit 3 initially adds the provider information supplied from the provider information generator 5 to the EPG supplied from the EPG generator 4.

Fig. 3 shows one example of the EPG, to which the provider information (provider tag) has been added. In this example, at the start of the EPG, "ASAHI" as a provider tag is disposed between two pairs of brackets indicating the type of information. In other words, just after <PROVIDER TAG> indicating the start and type of information, provider tag "ASAHI" is disposed, and </PROVIDER TAG> indicating the end of information is disposed.

Subsequently, <BROADCAST FILE 1> to <BROADCAST FILE 6>

representing programs are disposed. For example, concerning broadcast file 1, <BROADCAST FILE 1> indicating the type and start of information is displayed. Next, subsequently to <BROADCAST DATE> indicating a broadcast date, the date on which the broadcast file 1 is broadcast: December 24, 1997, 16:00-16:10; and </BROADCAST DATE> representing the end of information are disposed. Subsequently, "SOGO" indicating a broadcasting station is disposed between <BROADCASTING STATION> and </BROADCASTING STATION>, and "NEWS" indicating a program name is disposed between <PROGRAM NAME> and </PROGRAM NAME>. In the same manner, the broadcast files 2-6 are disposed.

The EPG to which the provider tag has been added is superposed on the image signal, for example, its vertical retrace blanking period, by the combining unit 3. The superposed image signal is output to the transmitter 6.

In step S5, the transmitter 6 modulates a carrier in accordance with the image signal, and amplifies and supplies its power to the antenna 7 for transmission. After that, it ends processing.

The structure of a receiving apparatus for receiving the image signal transmitted by the above-described transmitting apparatus will be described below.

Fig. 4 shows a block diagram of an embodiment of a receiving apparatus according to the present invention.

In Fig. 4, an antenna 20 is used to receive electric waves transmitted by the antenna 7 at the transmitting end. A television (TV) tuner 21 extracts an image signal by extracting a predetermined frequency (broadcasting station) signal from the electric waves received by the antenna 20 and demodulating it, and the TV tuner 21 extracts EPG included in the image signal.

A provider-information extractor 22 extracts provider information (provider tag) included in the EPG extracted by the TV tuner 21, and outputs the obtained provider tag and EPG.

A frame memory 23 combines the image signal from the TV tuner 21 and the EPG output from a controller 25, or selects either one, and outputs it to a cathode-ray tube (CRT) 24 for display.

The CRT 24 displays the image signal output from the frame memory 23.

The controller 25 includes: a central processing unit (CPU) 25a for controlling other units; a read only memory (ROM) 25b in which predetermined programs to be executed by the CPU 25a and data are stored; a random access memory (RAM) 25c in which, when the CPU 25a performs predetermined computation, data and programs which are being used for the computation are stored; and an interface (IF) 25d for converting the format of data when the data is transmitted

to or received from an external apparatus.

An input unit 26 is operated when a user provides a predetermined input (for example, input for selecting a receiving channel).

In the above-described embodiment, an amplifier, a speaker, etc. for reproducing a sound signal included in the image signal received by the TV tuner 21 are omitted for a simplified description.

The operation of the above-described embodiment will be described below with reference to the flowchart shown in Fig. 5.

Fig. 5 shows the flowchart, which illustrates a process executed in the controller 25 shown in Fig. 4.

When the process shown in Fig. 5 is executed, in step S10, the CPU 25a in the controller 25 determines whether or not a predetermined input for displaying EPG has been provided from the input unit 26. If it is determined that the predetermined input has not been provided (NO), the process returns to step S10, in which the same processing is repeatedly performed until the predetermined input is provided. If it is determined that the predetermined input has been provided (YES), the process proceeds to step S11.

In step S11, the CPU 25a specifies a broadcasting station that provides EPG by referring to the provider tag (e.g., "ASAHI" etc.) extracted by the provider-information

extractor 22. The process proceeds to step S12.

In step S12, the CPU 25a extracts from the EPG supplied from the provider-information extractor 22, program information from the broadcasting station corresponding to the provider tag.

It is assumed that the provider tag is "ASAHI", the broadcast file 6 shown in Fig. 3 is extracted as extractive program information. Such program information is transmitted for a one day requirement. Accordingly, in step S12, a plurality of broadcast files are extracted in addition to the broadcast file 6.

In step S13, the CPU 25a sets the program information (broadcast file) from the broadcasting station corresponding to the provider tag extracted in step S12 in the frame memory 23 in its top row in the order of time.

In step S14, the CPU 25a sets other program information (program information from broadcasting stations excluding the broadcasting station corresponding to the provider tag) in the frame memory 23 in the order of channels.

Fig. 6 shows an example of an image displayed on the CRT 25 as a result of processing in steps S13 and S14. In this example, the programs corresponding to the provider tag "ASAHI", namely, "SUIYO SUSPENSE", "RYORI", and "SASURAI KEIJI KANJO-HEN" are displayed in the top row, with them magnified and the background color changed. Under the

programs, "NE (NEWS)" and "ASAGA MAIRIMASHITA" are displayed. Under them, programs from broadcasters "KYOIKU" and "NIPPON" are displayed in a format identical to that in the above case.

In the case where the above-described processing (display alteration in accordance with the provider tag) is not performed, an image as shown in Fig. 7 is displayed. In this image, program information from broadcasting stations is displayed in the order of the following channels: "SOGO" (channel 1), "KYOIKU" (channel 3), "NIPPON" (channel 4), "TOKYO" (channel 6), "FUJI" (channel 8), and "ASAHI" (channel 10). In the same format, information on all broadcasting stations is displayed.

Returning to the flowchart shown in Fig. 5, in step S15, the CPU 25a determines whether or not a predetermined input for ending EPG display is provided from the input unit 26. If it is determined that the predetermined input has not been provided (No), the process returns to step S15, in which the same processing is repeatedly performed. If it is determined that the predetermined input has been provided (YES), the process ends.

According to the above-described embodiment, a transmitting apparatus adds to an image signal, provider information indicating broadcast stations that provide EPG, and a receiving apparatus displays in a top row, program

information from the broadcast station corresponding to the provider information so that the program information is emphasized. Thus, a possibility in which a user watches the programs from the broadcasting station can be increased.

According to the above-described embodiment, part of the program information is displayed as shown in Fig. 6. However, needless to say, similarly to the case shown in Fig. 7, information on the whole of the program information may be displayed.

In the case where the number of broadcasting stations providing EPG is two, two type of provider information are transmitted. In this case, for example, as shown in Fig. 8, program information corresponding to the two broadcasting stations may be displayed in top rows.

Fig. 9 shows a block diagram of a second embodiment of a receiving apparatus according to the present invention. In Fig. 9, components corresponding to those shown in Fig. 4 are denoted by identical reference numerals for omitting descriptions.

Compared with the embodiment shown in Fig. 4, the provider-information extractor 22 is excluded in the second embodiment. In a ROM 25b in a controller 25, a table on the correspondence between frequencies and channel identifications (Ids) is stored as shown in Fig. 11. The structures of other components are identical to those shown

in Fig. 4.

The operation of the receiving apparatus shown in Fig. 9 will be described below, with reference to the flowchart shown in Fig. 10.

Fig. 10 shows a flowchart illustrating a process executed in the controller 25 shown in Fig. 9.

When the process is executed, in step S20, a CPU 25a determines whether or not a predetermined input for displaying EPG has been provided from an input unit 26. If it is determined that the predetermined input has not been provided (NO), the process returns to step S20, in which the same processing is repeatedly performed until the predetermined input is provided. If it is determined that the predetermined input has been input (YES), the process proceeds to step S21.

In step S21, the CPU 25a acquires the frequency of a signal that is being received by a TV tuner 21. The process proceeds to step S22, in which the broadcasting station ID corresponding to the acquired frequency is retrieved from the ROM 25b.

Fig. 11 shows the table indicating the correspondence between frequencies and broadcasting station (channel) IDs. In the table, a frequency of 90 to 96 MHz corresponds to broadcaster "SOGO", a frequency of 102 to 108 MHz corresponds to broadcaster "KYOIKU", a frequency of 170 to

176 MHz corresponds to broadcaster "NIPPON", a frequency of 192 to 198 MHz corresponds to broadcaster "FUJI", and a frequency of 204 to 210 MHz corresponds to broadcaster "ASAHI".

In the case where the receiving frequency of the TV tuner 21 is, for example, 207 MHz, the CPU 25a acquires "ASAHI" as a broadcasting station (channel) ID.

In step S23, the CPU 25a extracts the program information corresponding to the broadcasting station ID acquired in step S22 from EPG data supplied from the TV tuner 21. The process proceeds to step S24.

In step S24, the CPU 25a enlarges the program information extracted in step S23, and writes it in a predetermined region of a frame memory 23, whereby it can be displayed in the top row on a CRT 24. The process proceeds to step S25.

In step S25, the CPU 25a causes the CRT 24 to display additional information (not shown) included in the EPG extracted by the TV tuner 21 in the second top row on the CRT 24. The additional information relates to a program title, program contents, or a cast.

The process proceeds to step S26, in which information on other programs (program information from broadcasting stations excluding the broadcasting station being received) is displayed on the CRT 24 in the order of channels.

Fig. 12 shows an example of an image displayed on the CRT 24 as a result of processing in steps S24 to S26. In this example the program information corresponding to broadcaster "ASAHI", which is program information corresponding to the broadcasting station being received, is displayed in the top row on the screen. In addition, under program names ("SUIYO SUSPENSE", "RYORI", and "SASURAI KEIJI KANJO-HEN"), program titles ("MIKKAINO SATSUJIN JIKEN" and "SHISANKA KIETA"), program contents ("KANINO MUSHI"), a cast (NAKAO KIYO, MORIMOTO REO, MATSUSHIMA SHIN-ICHI, YOSHIDA KAZUKO, NISHIDA MAKOTO), and so forth, are displayed. Under broadcaster "ASAHI", program information from other broadcasters (or channels): "SOGO", "KYOIKU", and "NIPPON" are sequentially displayed.

According to the above-described embodiment, program information from one broadcasting station being received is displayed in the top row, which enables the user to instantly refer to other programs from the broadcasting station.

Fig. 13 shows a block diagram of a third embodiment of a receiving apparatus according to the present invention. Components in Fig. 3 corresponding to those shown in Fig. 4 are denoted by identical reference numerals for omitting descriptions.

Compared with the first embodiment shown in Fig. 4, in

the third embodiment shown in Fig. 13, the provider-information extractor 22 is excluded and a priority-station information generator 30 is additionally provided. The structures of other components are identical to those shown in Fig. 4.

The priority-station information generator 30 is used to generate a tag (e.g., "ASAHI") indicating a broadcasting station in cooperation with a manufacturer that produces or sells the receiving apparatus.

The operation of the receiving apparatus according to the third embodiment will be described below, with reference to the flowchart shown in Fig. 14.

When the process is executed, in step S40, a CPU 25a in a controller 25 determines whether or not a predetermined input for displaying EPG has been provided from an input unit 26. If it is determined that the predetermined input has not been provided (NO), the process returns to step S40, in which the same processing is repeatedly performed. If it is determined that the predetermined input has been provided (YES), the process proceeds to step S41.

In step S41, the CPU 25a acquires the priority station tag output from the priority-station information generator 30. The process proceeds to step S42, in which the CPU 25a extracts program information corresponding to the priority station tag from EPG data output from the TV tuner 21.

In step S43, the CPU 25a enlarges the program information extracted in step S42 and writes it in a predetermined region of a frame memory 23, whereby it can be emphatically displayed in the top row on a CRT 24. In step S44, the CPU 25a uses the CRT 24 to display other program information in the order of channels.

Here, when it is assumed that broadcaster "ASAHI" is in cooperation with the manufacturer producing the receiving apparatus and that the priority-station information generator 30 generates "ASAHI" as a priority station tag, the image shown in Fig. 6 is displayed on the CRT 24 as a result of display processing in steps S43 and S44. Accordingly, a possibility in which programs from the broadcasting station in cooperation with the manufacturer producing the receiving apparatus are watched can be increased.

In the foregoing embodiments, an example of analog terrestrial broadcasting has been described. However, the present invention is not limited to such a case but, needless to say, it may be applied to, for example, satellite broadcasting, digital broadcasting, or cable television.

In this specification types of the transmission medium include not only information recording media such as a floppy disc and a CD-ROM but also network transmission media

[illegible]

WHAT IS CLAIMED IS:

1. A receiving apparatus for receiving an image signal transmitted from a transmitting end, said receiving apparatus comprising:

receiving means for receiving said image signal;

first output means for outputting the image signal received by said receiving means to a display;

extracting means for extracting electronic program guide information (EPG) added to the image signal received by said receiving means;

alteration means for altering the display format of said EPG when said EPG is displayed on said display, in accordance with predetermined information; and

second output means for outputting the EPG altered by said alteration means to said display.

2. A receiving apparatus according to Claim 1, wherein said predetermined information represents a broadcasting station providing said EPG.

3. A receiving apparatus according to Claim 1, wherein said predetermined information represents a broadcasting station transmitting said image signal, which is being received by said receiving means.

4. A receiving apparatus according to Claim 1, further comprising recording means for recording information representing a predetermined broadcasting station, wherein said predetermined information represents the predetermined broadcasting station recorded in said recording means.

5. A receiving apparatus according to Claim 1, wherein said alteration means alters the order of data constituting said EPG to be displayed in accordance with said predetermined information.

6. A receiving apparatus according to Claim 1, wherein said alteration means displays data constituting said EPG so that part of the data is emphasized in accordance with said predetermined information.

7. A receiving apparatus according to Claim 1, wherein said alteration means displays data constituting said EPG so that additional information is added to part of the data in accordance with said predetermined information.

8. A receiving method for receiving an image signal transmitted from a transmitting end, said receiving method comprising:

a receiving step for receiving said image signal;
a first output step for outputting the image signal received in said receiving step to a display;
an extracting step for extracting EPG added to the image signal received in said receiving step;
an alteration step for altering the display format of said EPG when said EPG is displayed on said display, in accordance with predetermined information; and
a second output step for outputting the EPG altered in said alteration step to said display.

9. A transmission medium for transmitting a computer program used in a receiving apparatus for receiving an image signal transmitted from a transmitting end,

in which said computer program comprises:
a receiving step for receiving said image signal;
a first output step for outputting the image signal received in said receiving step to a display;
an extracting step for extracting EPG added to the image signal received in said receiving step;
an alteration step for altering the display format of said EPG when said EPG is displayed on said display, in accordance with predetermined information; and
a second output step for outputting the EPG altered in said alteration step to said display.

10. A receiving apparatus for holding a computer program and using said computer program to receive an image signal, wherein said computer program comprises: a receiving step for receiving said image signal; a first output step for outputting the image signal received in said receiving step to a display; an extracting step for extracting EPG added to the image signal received in said receiving step; an alteration step for altering the display format of said EPG when said EPG is displayed on said display, in accordance with predetermined information; and a second output step for outputting the EPG altered in said alteration step to said display.

11. A transmitting apparatus for transmitting an image signal to a receiving end, said transmitting apparatus comprising:

first generating means for generating said image signal;

second generating means for generating EPG;

third generating means for generating information representing a broadcasting station providing said EPG;

adding means for adding said EPG generated by said second generating means and said information representing the broadcasting station, which is generated by said third

generating means, to said image signal generated by said first generating means; and

transmitting means for transmitting to the receiving end the signal obtained by adding said EPG and said information representing the broadcasting station to said image signal.

12. A transmitting method for transmitting an image signal to a receiving end, said transmitting method comprising:

a first generating step for generating said image signal;

a second generating step for generating EPG;

a third generating step for generating information representing a broadcasting station providing said EPG;

an adding step for adding said EPG generated in said second generating step and said information representing the broadcasting station, which is generated in said third generating step, to said image signal generated in said first generating step; and

a transmitting step for transmitting to the receiving end the signal obtained in said adding step by adding said EPG and said information representing the broadcasting station to said image signal.

13. A transmission medium for transmitting a computer program used in a transmitting apparatus for transmitting an image signal to a receiving end, wherein said computer program comprises:

a first generating step for generating said image signal;

a second generating step for generating EPG;

a third generating step for generating information representing a broadcasting station providing said EPG;

an adding step for adding said EPG generated in said second generating step and said information representing the broadcasting station, which is generated in said third generating step, to said image signal generated in said first generating step; and

a transmitting step for transmitting to the receiving end the signal obtained in said adding step by adding said EPG and said information representing the broadcasting station to said image signal.

14. A transmitting apparatus for holding a computer program and using said computer program to transmit an image signal, wherein said computer program comprises: a first generating step for generating said image signal; a second generating step for generating EPG; a third generating step for generating information representing a broadcasting

station providing said EPG; an adding step for adding said EPG generated in said second generating step and said information representing the broadcasting station, which is generated in said third generating step, to said image signal generated in said first generating step; and a transmitting step for transmitting to the receiving end the signal obtained in said adding step by adding said EPG and said information representing the broadcasting station to said image signal.

ABSTRACT OF THE DISCLOSURE

A receiving apparatus receives an image signal transmitted from a transmitting end. In the receiving apparatus, the received image signal is output to a display. Electronic program guide information (EPG) added to the received image signal is extracted. The display format of the EPG is altered in accordance with predetermined information. And, the altered EPG is output to the display. A transmitting apparatus transmits an image signal to a receiving end. In the transmitting apparatus, the image signal, EPG, information representing a broadcasting station providing the EPG are generated. The EPG and the information representing the broadcasting station are added to the image signal. And, a signal formed by adding the EPG and the information representing the broadcasting station to the image signal is transmitted to the receiving end.

FIG. 1

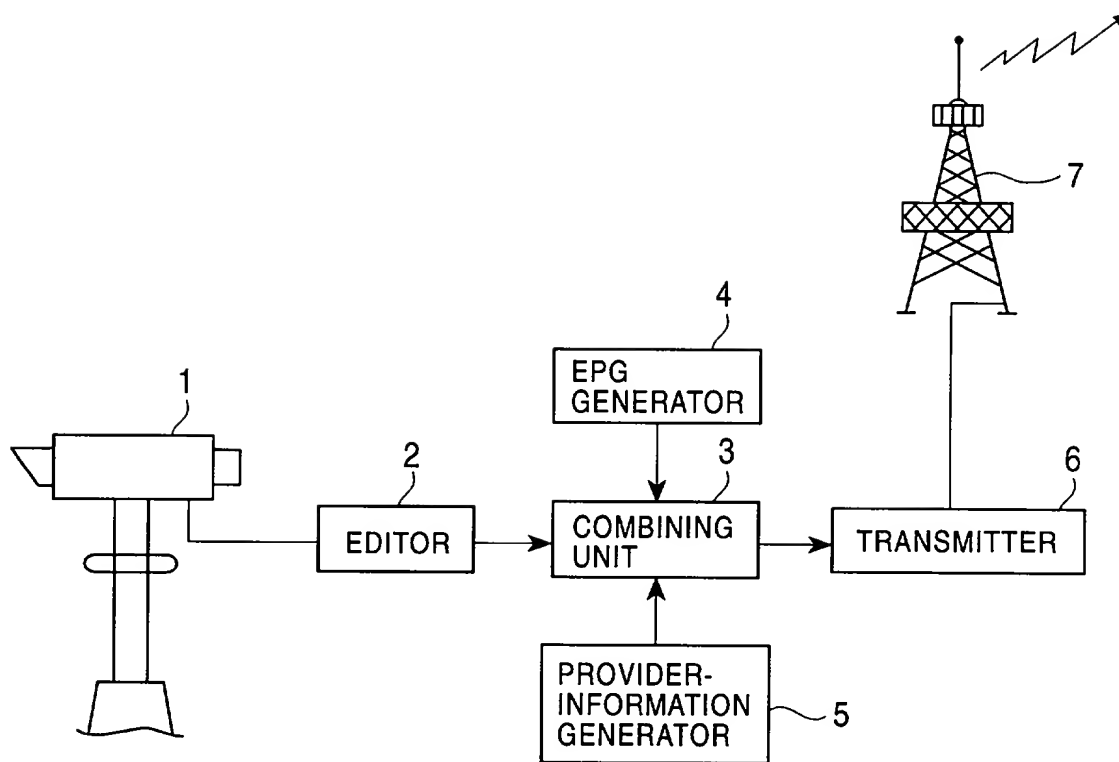


FIG. 2

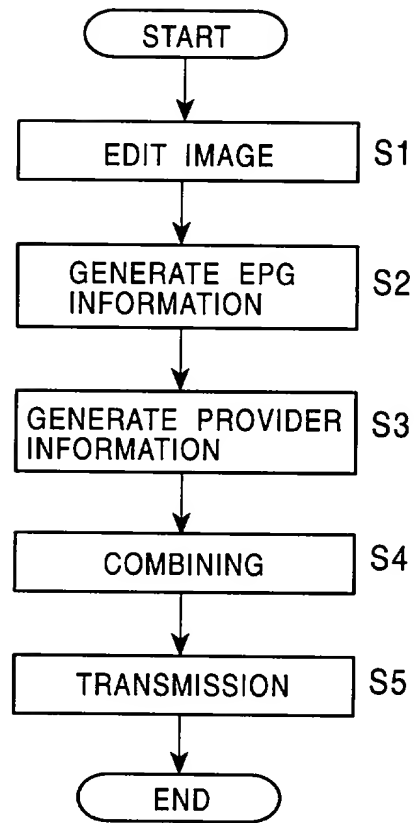


FIG. 3

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  ASAHI
</ PROVIDER TAG >
< BROADCAST FILE 1 >
  < BROADCAST DATE > DECEMBER 24, 1997, 16 : 00 - 16 : 10 </ BROADCAST DATE >
  < BROADCASTING STATION > SOGO </ BROADCASTING STATION >
  < PROGRAM NAME > NEWS </ PROGRAM NAME >
</ BROADCAST FILE 1 >
< BROADCAST FILE 2 >
  < BROADCAST DATE > DECEMBER 24, 1997, 16 : 00 - 16 : 10 </ BROADCAST DATE >
  < BROADCASTING STATION > KYOIKU </ BROADCASTING STATION >
  < PROGRAM NAME > UTAWA TOMODACHI </ PROGRAM NAME >
</ BROADCAST FILE 2 >
< BROADCAST FILE 3 >
  < BROADCAST DATE > DECEMBER 24, 1997, 16 : 00 - 16 : 30 </ BROADCAST DATE >
  < BROADCASTING STATION > NIPPON </ BROADCASTING STATION >
  < PROGRAM NAME > GINGA TETSUDO 999 </ PROGRAM NAME >
</ BROADCAST FILE 3 >
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  < PROGRAM NAME > MITO KOMON </ PROGRAM NAME >
</ BROADCAST FILE 4 >
< BROADCAST FILE 5 >
  < BROADCAST DATE > DECEMBER 24, 1997, 16 : 00 - 16 : 30 </ BROADCAST DATE >
  < BROADCASTING STATION > FUJI </ BROADCASTING STATION >
  < PROGRAM NAME > ORYORI GANBARU </ PROGRAM NAME >
</ BROADCAST FILE 5 >
< BROADCAST FILE 6 >
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  < BROADCASTING STATION > ASAHI </ BROADCASTING STATION >
  < PROGRAM NAME > SUIYOU SUSPENSE </ PROGRAM NAME >
</ BROADCAST FILE 6 >
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FIG. 5

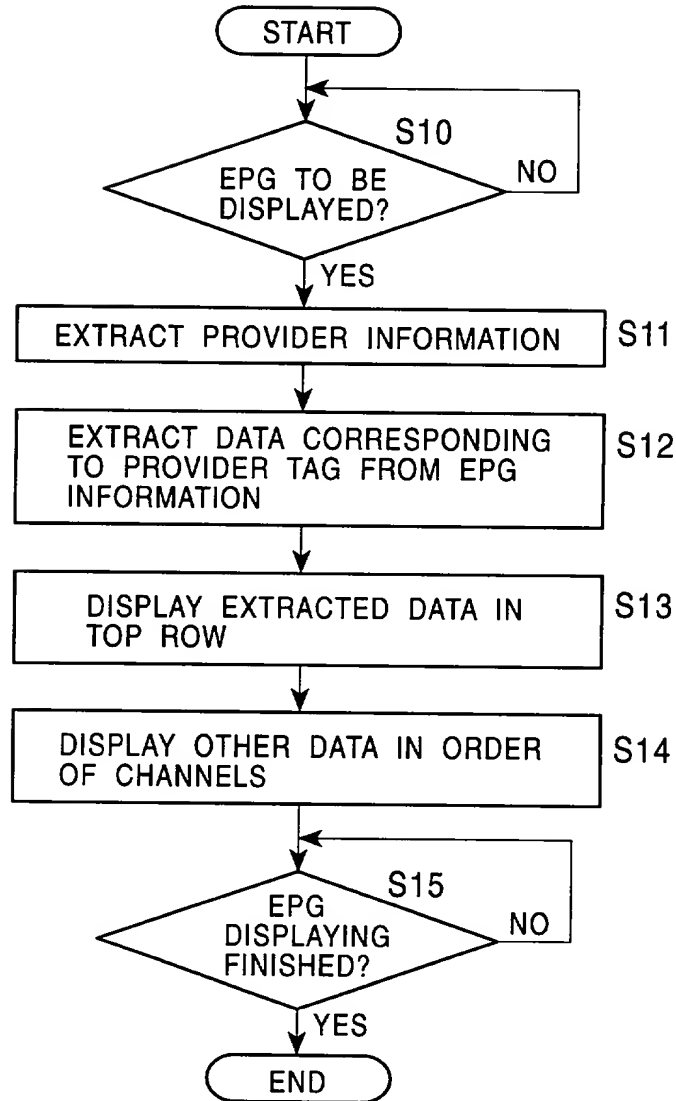


FIG. 6

	16 : 00			16 : 30			17 : 00		
ASAHI	SUIYO SUSPENSE						RYORI	SASURAI KEIJI KANJO-HEN	
SOGO	NE	ASAGA MAIRIMASHITA							
KYOIKU	UTA	ODO	ANI	HA	HITORIDE DE	OKASANTO	YAN		
NIPPON	GINGA TETUDO 999			IENAKIKO					

FIG. 7

	16 : 00			16 : 30			17 : 00	
SOGO	NE	ASAGA MAIRIMASHITA						
KYOIKU	UTA	ODO	ANI	HA	HITORIDE DE	OKASANTO	YAN	
NIPPON	GINGA TETUDO 999			IENAKIKO				
TOKYO	MITO KOMON			BOKUGA KANOJONI SHAKKIN				
FUJI	ORYORI GANBARU			SHINBAN! NAMA NAMA NAMA HOSO				
ASAHI	SUIYO SUSPENSE				RYORI	SASURAI KEIJI KANJO-HEN		

FIG. 8

	16 : 00			16 : 30			17 : 00			
ASAHI	SUIYO SUSPENSE						RYORI	SASURAI KEIJI KANJO-HEN		
NIPPON	GINGA TETUDO 999			IENAKIKO						
SOGO	NE	ASAGA MAIRIMASHITA								
KYOIKU	UTA	ODO	ANI	HA	HITORIDE DE		OKASANTO		YAN	

FIG. 9

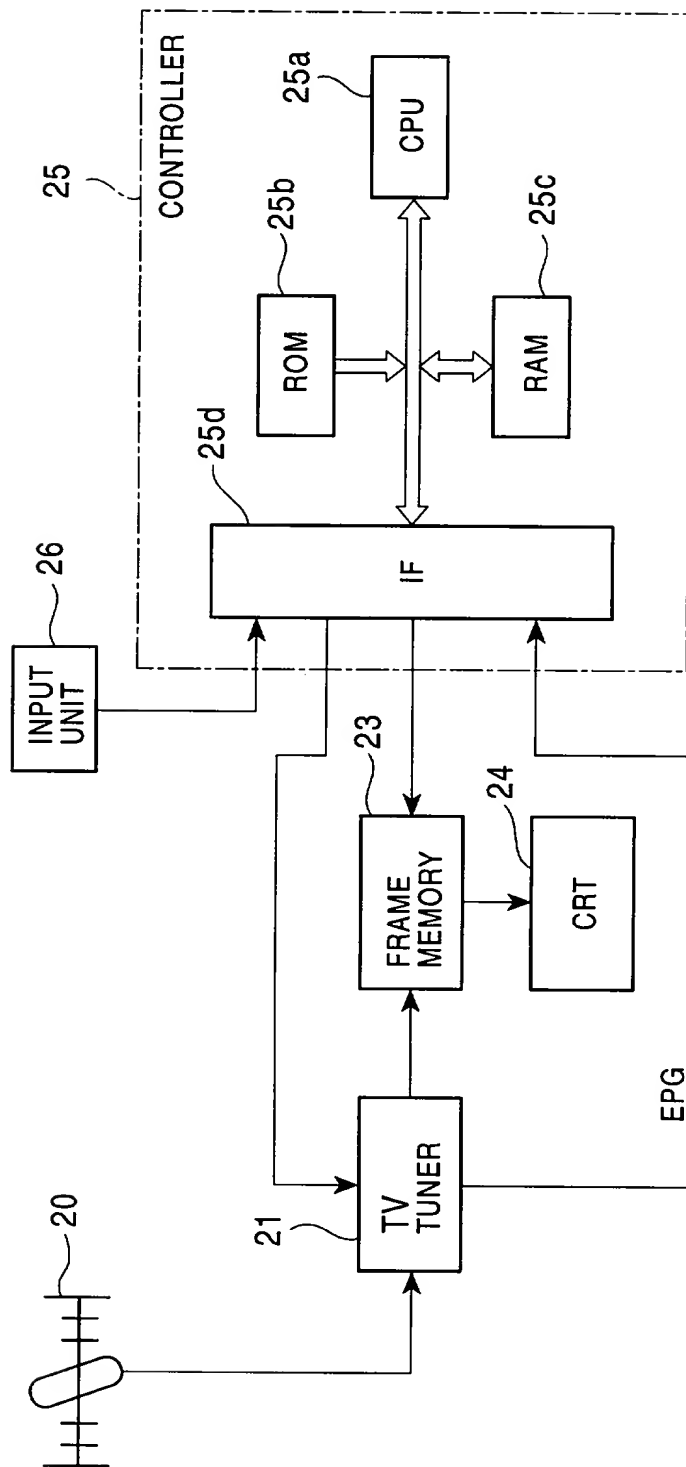


FIG. 10

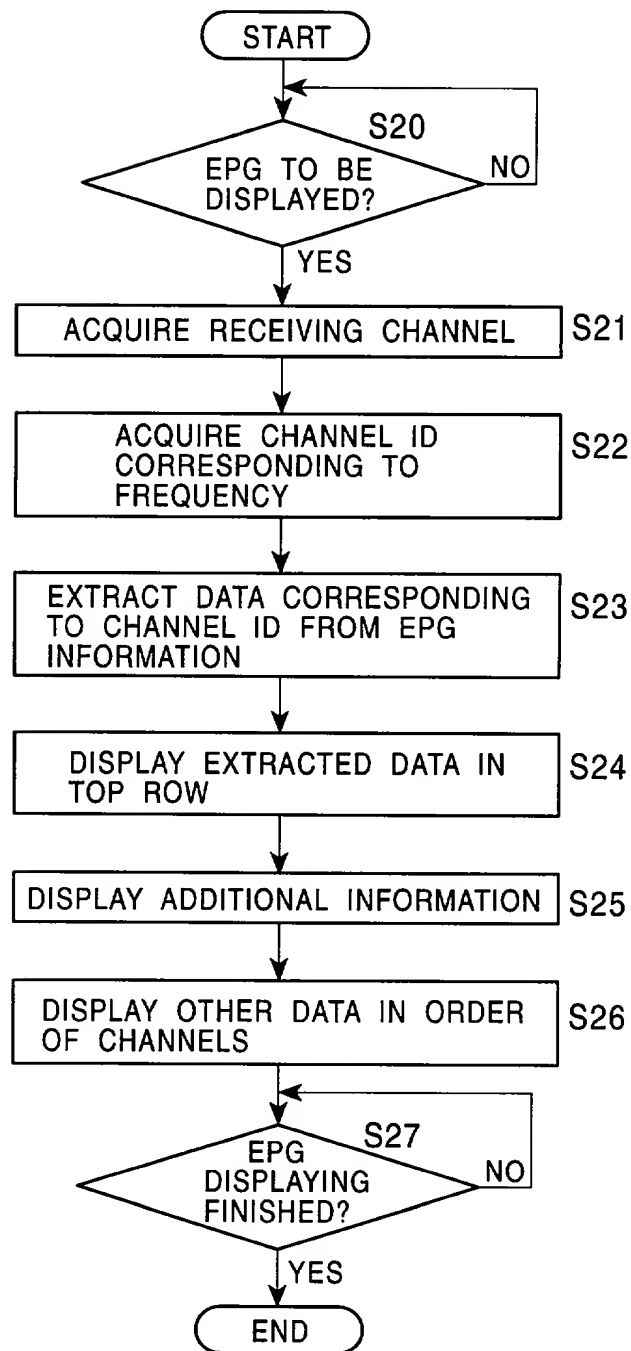


FIG. 11

FREQUENCIES	CHANNEL IDS
90 – 96	SOGO
102 – 108	KYOIKU
170 – 176	NIPPON
182 – 188	TOKYO
192 – 198	FUJI
204 – 210	ASAHI

FIG. 12

	16 : 00		16 : 30			17 : 00	
ASAHI	SUIYO SUSPENSE "MIKKAINO SATSUJIN JIKEN" NAKAO KIYO MORIMOTO REO MATUSHIMA SHIN-ICHI YOSHIDA KAZUKO				RYORI KANINO MUSHI	SASURAI KEIJI KANJO-HEN "SHISANKA KIETA" NISHIDA MAKOTO	
SOGO	NE	ASAGA MAIRIMASHITA					
KYOIKU	UTA	ODO	ANI	HA	HITORIDE DE	OKASANTO	YAN
NIPPON	GINGA TETUDO 999			IENAKIKO			

FIG. 13

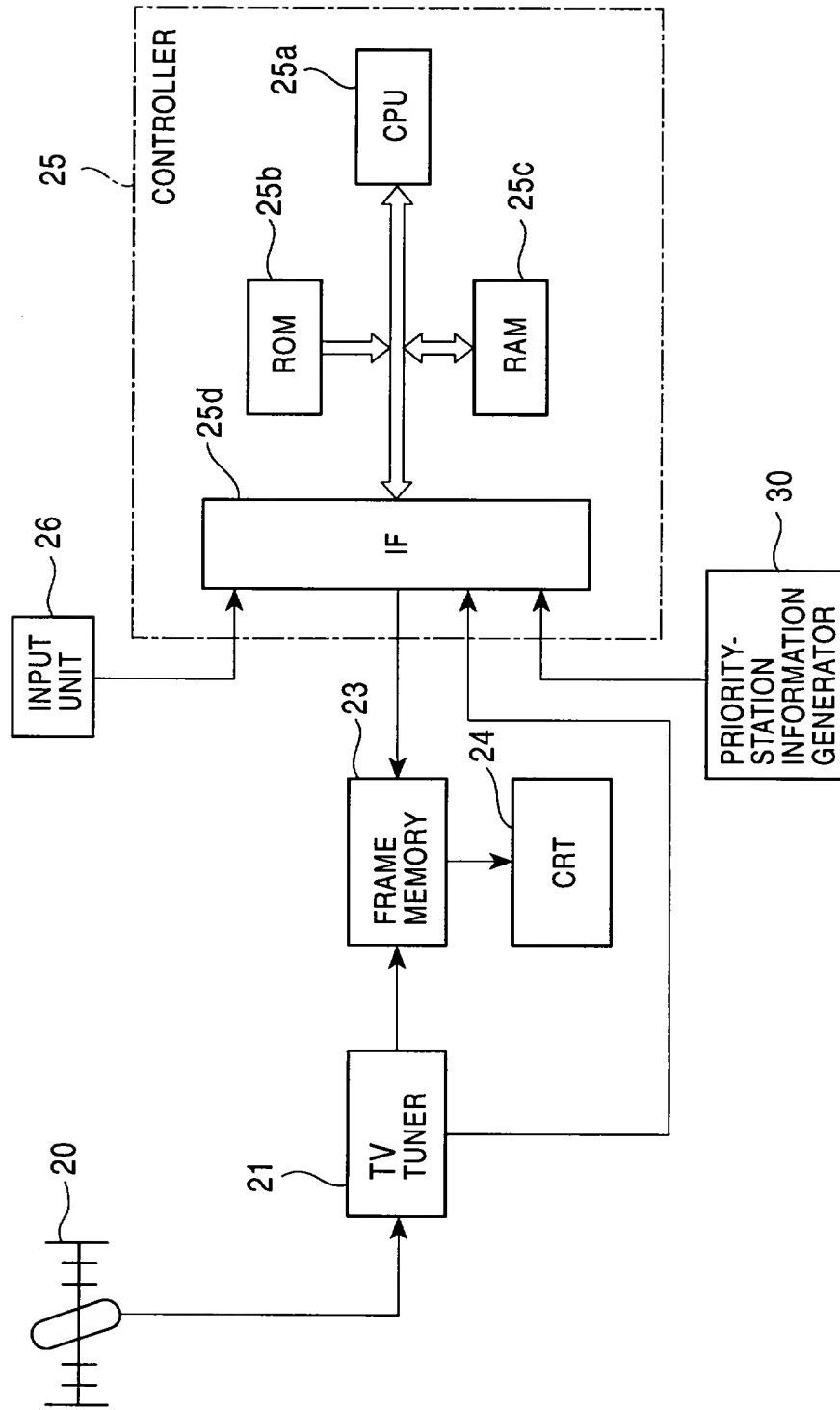
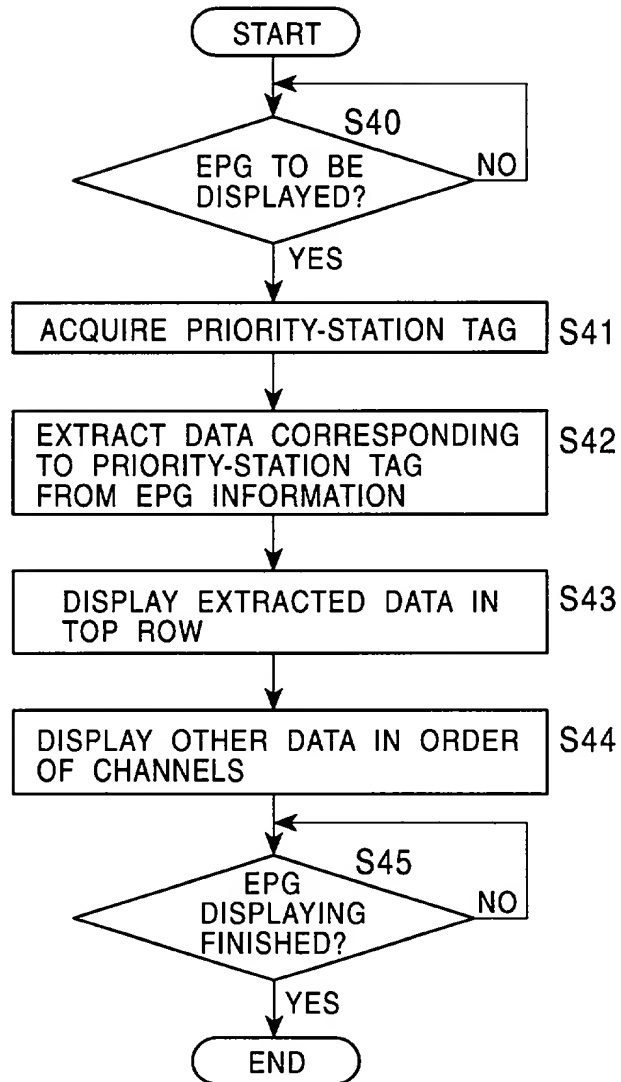


FIG. 14



Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書

下記の氏名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の名称が複数の場合）信じています。

I believe I am the original, first and sole inventor (if only one named is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled.

RECEIVING APPARATUS AND METHOD, TRANSMITTING APPARATUS AND METHOD, AND TRANSMISSION MEDIUM

☐ 上記発明の明細書（下記の欄でx印がついていない場合は、本書に添付）は、

the specification of which is attached hereto unless the following box is checked:

☐ 月 日に提出され、米国出願番号または特許協定条約国際出願番号を _____ とし、
(該当する場合) _____ に訂正されました。

☐ was filed on _____ as United States Application Number or PCT International Application Number _____ and was amended on _____ (if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されたとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

私は、米国法典第35編119条(a)-(d)項又は365条(b)項に基づき下記の、米国以外の国の少なくとも一カ国を指定している特許協力条約365(a)項に基づき国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している、本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

I hereby claim foreign priority under Title 35, United States Code, Section 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)
外国での先行出願

Priority Not Claimed
優先権主張なし

P09-193589
(Number)
(番号)

Japan
(Country)
(国名)

July 18, 1997
(Day/Month/Year Filed)
(出願年月日)

Japanese Language Declaration

日本語宣言書

(Number) _____ (Country) _____ (番号) _____ (国名) _____		(Day/Month/Year Filed) _____ (出願年月日) _____
私は、第35編米国法典119条(e)項に基いて下記の米国特許出願規定に記載された権利をここに主張いたします。		I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.
(Application No.) _____ (出願番号) _____	(Filing Date) _____ (出願日) _____	(Application No.) _____ (Filing Date) _____ (出願番号) _____ (出願日) _____
私は、下記の米国法典第35編120条に基いて下記の米国特許出願に記載された権利、又は米国を指定している特許協力条約365条(c)に基づく権利をここに主張します。また、本出願の各請求範囲の内容が米国法典第35編112条第1項又は特許協力条約で規定された方法で先行する米国特許出願に開示されていない限り、その先行米国出願書提出日以降で本出願書の日本国内または特許協力条約国際提出日までの期間中に入手された、連邦規則法典第37編1条56項で定義された特許資格の有無に関する重要な情報について開示義務があることを認識しています。		I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.
(Application No.) _____ (出願番号) _____	(Filing Date) _____ (出願日) _____	(Status: Patented, Pending, Abandoned) (現況: 特許許可済、係属中、放棄済)
(Application No.) _____ (出願番号) _____	(Filing Date) _____ (出願日) _____	(Status: Patented, Pending, Abandoned) (現況: 特許許可済、係属中、放棄済)
私は、私自身の知識に基づいて本宣言書中で私が行なう表明が真実であり、かつ私の入手した情報と私の信じることに基づく表明が全て真実であると信じていること、さらに故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基ずき、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の声明を行えば、出願した、又は既に許可された特許の有効性が失われることを認識し、よってここに上記のごとく宣誓を致します。		I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may be jeopardize the validity of the application or any patent issued thereon.

Japanese Language Declaration 日本語宣言書					
委任状： 私は下記の発明者として、本出願に関する一切の手続きを米特許商標局に対して遂行する弁理士または代理人として、下記の者を指名いたします。（弁理士、または代理人の氏名及び登録番号を明記のこと）			POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark office connected therewith (<i>list name and registration number</i>)		
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